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**UTILITY ASSESSMENT OF SPECIFICITY IN UPWARD FEEDBACK
INSTRUMENTS FOR LEADERSHIP DEVELOPMENT**

THESIS

Theresa M. Wardak, Captain, USAF

AFIT/GLM/ENV/03-02

**DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY**

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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AFIT/GLM/ENV/03-02

UTILITY ASSESSMENT OF SPECIFICITY IN UPWARD FEEDBACK
INSTRUMENTS FOR LEADERSHIP DEVELOPMENT

THESIS

Presented to the Faculty

Department of Operational Sciences

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In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Logistics Management

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Table of Contents

	Page
Acknowledgments.....	iv
Table of Contents.....	v
List of Figures.....	vi
List of Tables.....	vii
Abstract.....	viii
I. Introduction.....	1
General Issue.....	1
Overview of the Paper.....	2
II. Literature Review.....	4
Introduction.....	4
Upward Feedback Programs.....	4
The Leadership Practices Inventory.....	9
The Upward Feedback Instrument.....	16
Proposed Model and Hypotheses.....	18
Chapter Summary.....	27
III. Methodology.....	28
Introduction.....	28
Participants.....	28
Administration.....	29
Utility Assessment Development.....	31
Statistical Analyses.....	35
Chapter Summary.....	38
IV. Results.....	39
Introduction.....	39
Correlations.....	39
Regression Analysis.....	41
Chapter Summary.....	46
V. Discussion.....	47
Overview.....	47
Hypothesis 1.....	47
Hypothesis 2.....	47
Hypothesis 3.....	48
Hypothesis 4.....	48
Limitations.....	49
Theoretical Implications.....	49
Practical Implications.....	50
Suggestions for Further Research.....	51
Appendix A.....	52
Appendix B.....	58
References.....	61

List of Figures

	Page
Figure 1. General model of leadership change process.	20
Figure 2. Model of leadership change process with specificity	25
Figure 3. Complete model of leadership change process.	26

List of Tables

	Page
Table 1. Posner and Kouzes's Practices and Commitments of Exemplary Leadership. .	11
Table 2. Results of Posner and Kouzes' Exploratory Factor Analysis	13
Table 3. Scale means, standard deviations, and reliability indexes for the Upward Feedback Instrument	17
Table 4. Descriptive Statistics of the Study Variables.....	36
Table 5. Correlations Among Study Variables	41
Table 6. Results of the Linear and Hierarchical Analysis	44

Abstract

Recently, organizations have been modifying performance appraisal systems to collect data from multiple sources to guide the development of supervisors. Upward feedback programs focus on development rather than appraisal by supplementing traditional downward feedback with subordinate feedback. The utility of two upward feedback instruments was assessed in this study; one is a commercially available instrument, the Leadership Practices Inventory (Posner & Kouzes, 1988) and the other is the recently developed, non-proprietary Upward Feedback Instrument (Patton, 2002). The Upward Feedback Instrument was designed to measure leadership behaviors at a more specific level. It was thought that greater feedback specificity would lead to greater intentions to change behavior and consequently, greater actual behavior change. This research developed and administered a utility assessment to supervisors and their subordinates in order to determine the performance of the respective instruments. Although the feedback specificity did not provide greater intentions to change, discretion, perceived organizational support, and perceptions of accuracy and usefulness were found to significantly affect intentions to change and actual behavior change.

UTILITY ASSESSMENT OF SPECIFICITY IN UPWARD FEEDBACK INSTRUMENTS FOR LEADERSHIP DEVELOPMENT

I. Introduction

General Issue

Upward feedback programs where subordinates rate their supervisor's behaviors have been increasingly used to develop leadership skills. Although much support for the value of upward feedback has been demonstrated, the behavioral change and upward feedback processes are still not fully understood. The overall objective of this research was to better understand upward feedback as a tool for leadership development.

This study assessed the utility of two upward feedback instruments, the Leadership Practices Inventory (LPI; Posner & Kouzes, 1988) and the Upward Feedback Instrument (UFI; Patton, 2002). The LPI is an established, commercial leadership feedback instrument. Patton developed the UFI as a non-proprietary alternative to the LPI for the leadership development of members of the United States Air Force. Supervisor and subordinate perceptions and reactions to the upward feedback were assessed by an instrument developed specifically for this research. In particular, this study sought to evaluate the effectiveness of the newly created UFI.

The UFI was designed to measure six different leadership constructs. Five constructs were modeled after the practices presented in *The Leadership Challenge* by Kouzes and Posner (1995). The five practices were *Challenge the Process*, *Inspire a*

Shared Vision, Model the Way, Enable Others to Act, and Encourage the Heart. Kouzes and Posner (1995) defined two commitments for each practice that described in further detail actions people should take to develop their leadership behaviors. The LPI (Posner & Kouzes, 1988) was developed to measure each of the five leadership practices. Patton's sixth construct, *Have Fun*, was developed at the request of the two Air Force pilot test units, and reflected the extent to which supervisors engaged in behaviors that were designed to relieve stress and tension in the workplace. In addition to the sixth leadership practice, *Have Fun*, Patton's UFI differed from the LPI in that it measured leader behavior at the more specific commitment level. It was thought that the more specific feedback generated by the UFI would lead to greater levels of leadership behavioral change.

Overview of the Paper

The remainder of this paper is divided into four chapters. Chapter II begins by reviewing existing research literature on upward feedback programs. The literature review first focuses on the practical value of upward feedback programs to an implementing organization and then details the expected effect on supervisor development. Subsequently, characteristics of an effective upward feedback program are presented and discussed. The chapter then presents evidence of the reliability and validity of both the LPI and UFI. The final section in the chapter presents the proposed model and hypotheses evaluated in this study.

Chapter III begins with a description of the participants and the administration of the utility assessment. The chapter next describes the utility assessment development

process and concludes with a discussion of the statistical techniques employed in the analysis. Chapter IV presents and analyzes the results of the regression analysis. The first regression was a multiple linear model while the remaining three were hierarchical regression models. This paper concludes with a discussion of the findings of the study, the identification and discussion of the limitations of the study, theoretical and practical implications of the study, and recommendations for future research.

II. Literature Review

Introduction

The following literature review contains four sections. The first section addresses the growing popularity of upward feedback. It also addresses the benefits and effects of upward feedback on supervisor's leadership development. The second section discusses the research of Kouzes and Posner (1995) which led to the development of their Leadership Practices Inventory (LPI). The second section also presents the psychometric properties of Kouzes and Posner's research as well as other studies that have employed the LPI for leadership development purposes. The third section presents the Upward Feedback Instrument (UFI) developed by Patton (2002) and modeled after the research done by Kouzes and Posner. The definition of the commitments and UFI results are presented and discussed. The fourth section introduces the research variables, the proposed model, and the hypotheses.

Upward Feedback Programs

Upward feedback is a process by which subordinates rate their immediate supervisors' work performance (London & Wohlers, 1991). Upward feedback is part of a wider field of study known as multi-rater feedback or 360-degree feedback where data are collected not only from direct report subordinates, but also supervisors, peers, indirect report subordinates, and stakeholders. Although this research examines the effects of upward feedback on leadership behavior, much of the multi-rater research is applicable to the current area of interest and, thus, will be included in the following literature review.

The upward and multi-rater feedback processes have been increasingly used in industry over the past decade, especially Fortune 500 companies (London & Smither, 1995). According to Antonioni (1996), 25 percent of American companies use upward feedback programs. In 1992 \$152 million was spent by companies, such as AT&T, Chase Manhattan Bank, and Amoco Corporation, on multi-rater development (Romano, 1994). A recent study by Russell (2001) estimated that \$3 million in additional profit per year could be expected for each top-level executive selected using assessments of competency.

The goal of an upward feedback program is to provide information to the supervisor so that he or she can improve his or her leadership capabilities. The feedback provides the manager with valuable criticism that highlights his or her strengths and weaknesses, based on the input from subordinate and self-evaluations. Specific feedback is very useful for leadership development because it can highlight precise areas for improvement. Theoretically, as supervisors receive more feedback for developmental purposes they will change their behavior as they become more self-aware (Atwater, Roush, & Fischthal, 1995).

Many researchers have demonstrated the soundness of using upward feedback for leadership development. According to Waldman and Atwater (2001), most leadership behavior is directed towards subordinates and they, therefore, “constitute a logical input source for feedback” for leadership development (p.190). Also, several studies have reported that multiple observers who have similar perspectives, such as a leader’s subordinates, increase the reliability of the feedback (Borman, 1974; Funder & Colvin,

1988). Additionally, a study of United States naval officers by Bass and Yammarino (1991) indicated that subordinate ratings correlated significantly with performance and promotability measures while self-ratings did not. Managers also value subordinates as feedback sources. A 1993 study by Bernardin, Dahmus, and Redmon reported that 56% of supervisors agreed or strongly agreed that subordinates were the best source for supervisory performance evaluation; only 6% of supervisors strongly disagreed. Finally, Smither, Wohlers, and London (1995) and McEvoy (1990) noted that managers, in general, find subordinate feedback acceptable and useful for development purposes, except for use in determining pay or evaluation. Based on the research presented above, subordinates have been established as a valid source of feedback for leadership development.

Some of the most recent research conducted in the field of multi-source feedback has evaluated the effects of the feedback on leadership performance. Although there is some non-supporting evidence for upward feedback (Kluger & DeNisi, 1996), several studies show that supervisors improve their performance scores (as perceived by their subordinates) after receiving upward feedback (Atwater, Waldman, Atwater, & Cartier, 1998; Bailey & Fletcher, 2002; Hegarty, 1974; Smither, Wohlers, et al., 1995). It has been shown that the greatest improvement is among supervisors receiving the most negative feedback initially (Atwater et al., 1995; Smither, London, Vasilopoulos, Reilly, Millsaf, & Salvemini, 1995) and that improvement can be sustained over many years (Reilly, Smither, & Vasilopoulos, 1996; Walker & Smither, 1999). Several studies have found management skill increases after receiving developmental feedback (Hazucha,

Hezlett, & Schneider, 1993; London & Smither, 1995). Further, one study reported that 89% of managers had said they formulated or intended to formulate an action plan based on results of the upward feedback they received (London, Wohlers, & Gallagher, 1990). It has been demonstrated that the development of an action plan is key to guiding behavior change (Locke & Latham, 1990; Walker & Smither, 1999). Ideally, a successful upward feedback program will lead to increased leadership development, levels of trust and communication in the organization, and customer satisfaction (Waldman, Atwater, & Antonioni, 1998).

While there is ample evidence that demonstrate the beneficial effect of feedback on leadership performance, several areas should be considered when implementing an upward feedback program to yield maximum results. Some studies have indicated that receiving feedback alone may not directly lead to change in leadership behavior (Bass & Avoilio, 1990; Locke & Latham, 1990; Nadler, 1977; Walker & Smither, 1999). Numerous studies (Kluger & DeNisi, 1996; Locke & Latham, 1990; Walker & Smither, 1999) have shown that what supervisors do with the feedback results can further guide behavior change, especially discussing the results with subordinates and setting goals. To create interest and involvement in the feedback program, Alimo-Metcalfe (1988) recommended an introductory workshop. The workshop should address the purpose of the program, commitment of top management, the benefits and limitations of the feedback, and the role of perceptions in the feedback.

Once the feedback is received by the supervisors, guidance must be given to properly interpret and analyze the results. Clarification should be made with those

providing the feedback and a personal development plan should be created. Walker and Smither (1999) found evidence that managers who held post-feedback discussions with subordinates improved their performance more than those who did not.

In addition to the introductory and post-feedback leadership training program, Alimo-Metcalfe (1998) strongly advocated the following support programs: a mentoring program, a supported self-managed learning program, and individualized career counseling. Yukl and Lepsinger (1995) also advocated support programs and activities, such as mentoring or on-the-job learning, to increase the benefits of the feedback.

In addition to the components necessary for a successful upward feedback program, administrators should also be aware of several potential shortcomings of upward feedback and how to overcome these shortcomings. A possible shortcoming of upward feedback is rater leniency. Subordinates often have a difficult time honestly appraising their supervisor for fear of reprisal or negatively affecting their boss. Ensuring anonymity of the raters alleviates this concern and provides for more accurate feedback. Several researchers (Baron, 1996; London & Wohlers, 1991; Waldman et al., 1998) agreed that upward feedback is most effective if done anonymously, which allows for more accurate and honest feedback to the manager. To achieve this anonymity several subordinates (at least three) rate on one supervisor, their scores are averaged, and the scores are reported back to that supervisor without mention of who completed the survey (London & Wohlers, 1991). Subordinates participating in a non-anonymous upward feedback program rated their bosses significantly higher than subordinates in an anonymous program (Antonioni, 1994).

Upward feedback is typically used for developmental purposes with the ratings shared with only the ratee. It has been reported that this often leads to low accountability of the ratee (London & Smither, 1995; London, Smither, & Adsit, 1997). To increase accountability of the ratee, Delassio (1998) suggested giving feedback to the ratee anonymously and exclusively, but then requiring the ratee to develop an action plan and share it with his or her supervisor. The supervisor can then hold the ratee accountable for progress toward the goals outlined. Additionally, London et al., (1997) suggested increasing accountability by encouraging the ratee to communicate with the raters to clarify the feedback and publicly commit to behavior change.

Although there are shortcomings and potential pitfalls to upward feedback programs, they have been shown to be an effective method for leadership development. Several instruments have been developed to facilitate upward feedback for the purpose of leadership development. A popular, commercially available instrument, the LPI was designed to accommodate both upward and 360-degree feedback. However, this study only employed the LPI in self and subordinate ratings. The UFI developed by Patton (2002) also focuses on feedback from subordinate and self-ratings. This study compares the effectiveness of these two instruments. Following is a discussion of the two instruments.

The Leadership Practices Inventory

The LPI was developed by Posner and Kouzes (1988) to measure leadership behaviors and provide leaders feedback on their behaviors. Following is an evaluation of the instrument's reliability and validity.

Content Validity

Posner and Kouzes (1988) performed an inductive analysis of prominent leadership practices among a vast sample of managers. They began with a qualitative survey asking managers to describe their personal best leadership experiences. This survey contained 37 open-ended questions, such as “Who initiated the project?” and “What did you learn most from the experience?” Over 650 managers responded. Additionally, a shorter survey yielded another 450 manager inputs. Also, 38 in-depth interviews were conducted with middle to senior-level managers to further discuss their personal best leadership experiences. All inputs were then content analyzed by Posner and Kouzes and validated by two other raters. (Posner & Kouzes, 1988)

The content analysis yielded five practices with two basic strategies, termed commitments for each practice. Eighty percent of the personal best inputs were attributed to these practices. Table 1 depicts the practices and commitments created by Posner and Kouzes (1988). The five practices listed on the left side of the table are *Challenge the Process*, *Inspire a Shared Vision*, *Enable Others to Act*, *Model the Way*, and *Encourage the Heart*. The commitments are listed to the right of their corresponding practice in Table 1. For example, the commitments for *Challenge the Process* are *search for opportunities* and *experiment and take risks*.

Items that reflected these behaviors were then developed. The items were evaluated on a five-point Likert-type scale indicating the frequency of that behavior’s occurrence. Two forms of the LPI were developed—LPI-Self, in which the leader

Table 1

Posner and Kouzes's Practices and Commitments of Exemplary Leadership.

Practice	Commitments
Challenge the Process	Search for Opportunities Experiment and Take Risks
Inspire a Shared Vision	Envision the Future Enlist the Support of Others
Enable Others to Act	Foster Collaboration Strengthen Others
Model the Way	Set the Example Plan Small Wins
Encourage the Heart	Recognize Contributions Celebrate Accomplishments

reports his or her perceptions of his or her own leadership behaviors, and LPI-Observer, in which the leader's subordinates report their perceptions of the leader's behavior.

Reliability & Construct Validity

The LPI was then administered to a sample of 120 MBA students. After completing the LPI, each item was discussed with the students and deleted or revised if the items were "difficult, ambiguous, or inconsistent" (Posner & Kouzes, 1988, p 486). The survey developers also had a feedback session with professionals in related academic areas who were familiar with measurement in this field. The LPI was then administered

to over 2,100 managers and subordinates. An exploratory factor analysis was used to assess internal reliability and construct validity. Poorly performing statements were eliminated or rewritten. This process led to a version of the LPI consisting of 30 items—six items measured each of the five leadership practices.

Table 2 presents means, standard deviations, internal reliability, test-retest reliability, and social desirability results from the publications of Posner and Kouzes on the LPI's psychometric properties (1988, 1993; Kouzes & Posner, 1995). Frequency scores were highest for *Enabling*, while *Inspiring* was the least frequently reported. Rank ordering of LPI-Self and LPI-Observer were identical although LPI-Self scores tended to be higher than LPI-Observer scores. This was not surprising because individuals tend to rank themselves higher than others. The LPI's internal reliabilities ranged from .81 to .91, LPI-Self reliabilities ranged from .71 to .85, and LPI-Observer reliabilities from .82 to .92. Test-retest reliability was high ranging from .93 to .95. Posner and Kouzes do not state the time between administrations. None of the social desirability response bias correlations was significant indicating social desirability response bias did not affect survey responses. Based on these studies the LPI has very high internal and over time reliability. Similar reliability levels were reported by other researchers (Adams, 1999; Bauer, 1993; Herold, Fields, & Hyatt, 1993; Mactavish, 1993; Ottinger, 1990; Tsend, 2000).

Other researchers have reported inconclusive findings concerning the LPI's construct validity. Patton (2002) found cross loadings and high correlations among the

Table 2

Results of Posner and Kouzes' Exploratory Factor Analysis

	Internal Consistency Estimates			<i>Test- Retest</i> ²	<i>Social Desirability</i> ³
	<i>LPI</i> ¹	<i>LPI-Self</i> ¹	<i>LPI- Observer</i> ¹		
Challenge	.81	.71	.82	.93	.13
Inspire	.87	.81	.88	.93	.04
Enable	.85	.75	.86	.94	.24
Model	.81	.72	.82	.95	.29
Encourage	.91	.85	.92	.93	.27

Note. Internal consistency estimates are coefficient alpha (α) reliability estimates.

¹ Kouzes & Posner (1995), $N = 43,899$, $n(\text{self}) = 6,651$, $n(\text{observer}) = 37,248$

² Posner & Kouzes (1993), $N = 157$

³ Posner & Kouzes (1988), $N = 30$

five practices. Additionally, the confirmatory factor analysis by Carless (2001) indicated that although the first order five factor model, as proposed by Posner and Kouzes (1988), had satisfactory goodness of fit, the LPI had weak validity because of high correlations between the constructs. Fields and Herold (1997) also reported satisfactory goodness of fit using Posner and Kouzes' first order five-factor model and high correlations among some of the constructs. Further, the fit of the model presented by Kouzes and Posner (1995), examined using chi-square fit statistic, root mean square residuals, t values, and

modification indexes, was acceptable. In summary, the five-factor model has consistently had satisfactory goodness of fit, however, constructs were found to have high correlations which raises questions about the instrument's validity.

Wunderly, Reddy, and Dember (1998) surveyed business leaders using the LPI, the Kirton-Adaption-Innovation Inventory, and a measure of optimism and pessimism to measure relationships among the responses. Two factors of the LPI correlated positively with optimism, but no factors significantly correlated with pessimism. The LPI performed similar to the established Kirton-Adaption-Innovation Inventory (relates to creativity, problem solving, and decision making). These results give some evidence of convergent validity of the LPI.

Further, Bowles and Bowles (2000) demonstrated construct validity for the LPI in their study of leadership behaviors of nurses. Their study compared the leadership of nurses working in Nursing Development Units and nurses working in traditional clinical environments. Nursing Development Units were created as centers of nursing excellence, innovation, and leadership development. The LPI-Observer indicated statistical significance in the overall leadership being higher in development unit nurses than nurses from traditional environments. This provided some evidence of the instrument's ability to distinguish between known groups where differences were expected.

Construct validity of the LPI was evaluated using a leadership effectiveness scale generated by Posner and Kouzes (1988). Stepwise regression analysis resulted in a highly significant regression equation ($F = 318.9, p < .0001$) and explained about 55% of

the variance between subordinate assessments and leadership effectiveness.

Additionally, in their 1988 study, Posner and Kouzes used discriminant analysis to assess the LPI's predictive validity of how well the LPI scores grouped managers into high and low performance categories; 93% of the cases were correctly categorized. These results demonstrate the LPI's effectiveness as compared with previously established measures. Although Posner and Kouzes report significant criterion validity of the LPI, independent studies are needed to validate the researchers' claims.

LPI Summary

Kouzes and Posner's five-factor structure model appears to be sound. It is consistent with the theoretical model and internal and test-retest reliabilities are substantial. Social desirability bias does not significantly affect responses. Although some evidence presents seemingly contradictory evidence of the LPI's validity and no other researchers have examined the criterion validity of the LPI, it appears to be a reliable and fairly valid instrument.

Further, Posner and Kouzes (1993, 2002) report no statistically significant differences between public and private sector managers. Few differences were reported in cross-cultural managers. Male and female respondents were similar except that females score significantly higher on the *Encouraging* and *Modeling* practices. Few differences were found across functional fields and ethnic backgrounds. Additionally, demographic attributes were found to be unrelated to LPI scores. These findings lend support to the generalizability of the LPI.

The Upward Feedback Instrument

The Upward Feedback Instrument (UFI) was developed by Patton (2002) to provide a non-proprietary alternative to Kouzes and Posner's LPI (1988). The UFI was developed based on the LPI's leadership model, however, Patton chose to measure the leadership constructs at the commitment level rather than the practice level used in the LPI. Because two commitments comprise every practice, this instrument measured more specific leadership behaviors. Patton also added a sixth practice, *Have Fun*, to the UFI. Patton conducted a pilot study of the UFI in 2002. .

Reliability & Construct Validity

The UFI was administered to 60 civilian and military supervisors and 352 subordinates at a military base in the Midwest. Table 3 shows the UFI scale means, standard deviations, internal reliabilities, and test-retest reliabilities from the pilot survey. The UFI used a 7-point Likert-type scale, with frequencies ranging from *not observed* to *almost always*. Frequency scores were highest for *shares information and power*, while *attract others to a common purpose* was the least frequently reported. The UFI's internal reliabilities ranged from .87 to .91. Patton looked at three different test-retest reliabilities: LPI with LPI, UFI with UFI, and LPI with UFI. For the LPI and UFI, half the sample received the LPI first and the other half received the UFI first. Test retest reliability for the LPI was high (.97 to .98). The correlations between the UFI and LPI for the five common practices were also high (.87 to .91). The test-retest reliability for the UFI, however, was not as high (.51 to .80). The low test-retest reliabilities for the UFI were especially puzzling given that the relatively high correlation between the

Table 3

Scale means, standard deviations, and reliability indexes for the Upward Feedback

Instrument

Scale	<i>M</i>	<i>SD</i>	UFI ¹	Test-Retest ²
Seek out challenges to innovate and improve (C1)	4.95	1.65	.91	.53
Try ideas, take risks, learn from mistakes (C2)	4.79	1.68	.88	.74
Create a vision (I1)	5.00	1.63	.89	.51
Attract others to a common purpose (I2)	4.36	1.76	.89	.66
Encourage trust and cooperation (E1)	5.34	1.49	.89	.74
Shares information and power (E2)	5.54	1.34	.89	.80
Set the example (M1)	4.94	1.60	.89	.55
Motivate, build commitment with small wins (M2)	4.73	1.60	.89	.62
Recognize & reward individual performance (H1)	4.96	1.65	.87	.53
Celebrate team accomplishments (H2)	4.70	1.79	.88	.66
Allow humor to reduce stress & boredom (F1)	5.48	1.53	.90	.57
Promote fun activities to relax and unwind (F2)	4.54	1.86	.90	.74

Note. Modified from *Developing an Upward Feedback Instrument For Supervisor*

Development (p. 61, 64) by D. Patton, 2002, AFIT: Wright-Patterson AFB.

¹ *N* = 417

² *N* = 28

practices measured by different instruments. Patton reported that no definitive conclusions could be made about the stability of the UFI based on the data. UFI-Self, UFI-Observer, and social desirability were not reported.

Using confirmatory factor analysis, Patton (2002) determined that a six-factor structure best modeled the 12 leadership commitments compared to a five-factor structure. However, the constructs correlated very highly with each other, ranging from a low of .77 to a high of .98. Because the correlations among the commitments were very high, the results “cast doubt as to the true distinctiveness of the constructs as measured by the 12 UFI commitment scales” (Patton, 2002, p. 76). The largest correlation was between the *Inspire* and *Model* practices ($r = .98$). *Inspire* and *Model* were also highly correlated with *Challenge* ($r = .93$ and $r = .95$, respectively). The *Have Fun* construct showed the most distinctiveness with correlations ranging from .77 to .92. These correlations were higher than those found in the LPI and results should be interpreted with this possible limitation in mind.

Proposed Model and Hypotheses

The overall objective of this research was to better understand upward feedback as a tool for leadership development. This study compared the leadership development reported after receiving the two types of upward feedback (LPI and UFI). Also, the relationships between characteristics of the feedback, characteristics of the organization, intentions to change leadership behavior, and actions taken to improve leadership were analyzed. The results of this analysis may provide support for the recently developed, non-proprietary feedback instrument (UFI) available to managers. Further, supervisors

and human resource managers may have greater insights into characteristics which make feedback programs effective.

The behavior change models proposed by Ilgen, Fisher, and Taylor (1979) and Ajzen and Fishbein (1973) provide the foundation for this research. Ilgen et al., (1979) put forth a four-stage process on how feedback results in behavior change. First, the feedback recipient perceives the feedback from any given source. Then, the feedback recipient accepts the feedback as an accurate portrayal of his or her performance. Third, the feedback recipient accepts the feedback as useful and desires to change his or her behavior. Finally, the feedback recipient intends to change his or her behavior. The model put forth by Ajzen and Fishbein (1973) says that a person's intentions to act following feedback directly proceeds a person's behavior. The combined behavioral change model proposes that once a leader receives feedback, the feedback is found accurate and useful, then the leader demonstrates an intention to change, and finally, the leader takes action or changes his or her leadership behavior. The general model of the leadership change process is represented in Figure 1.

Perceptions of Accuracy and Usefulness

The stages in above model have been conceptualized by the constructs of perceptions of accuracy and usefulness, intentions to act, and behavior change. The following is a presentation of the first stage, perceptions of accuracy and usefulness.

Perceptions. The Ilgen et al., (1979) behavioral change model proposed that the feedback recipient must first perceive the feedback and then find it accurate and useful in order for behavior change to occur. Further, Atwater et al., (2000) found that the

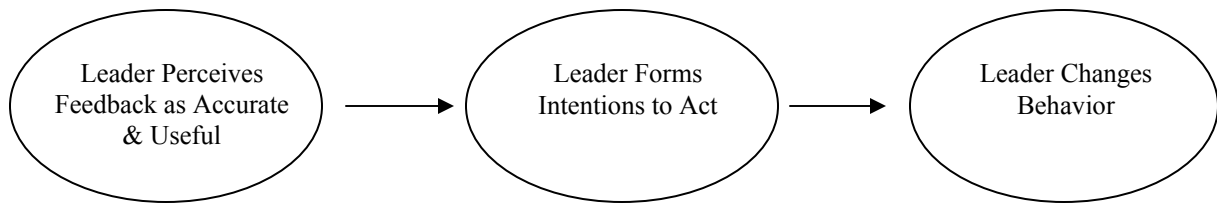


Figure 1. General model of leadership change process.

supervisor's perception of the accuracy of the feedback (e.g., belief that the feedback was honest, valuable, and led to goal setting) was positively related to the supervisor improvement over time. The current researcher concluded that perceptions of accuracy and usefulness are essential to the leader changing his or her behavior. It was thought that the greater perceptions of accuracy and usefulness would lead to greater intentions to change

Hypothesis 1: Perceptions of more accurate and useful feedback will lead to greater intentions to change.

Intentions to Act

Consistent with Ajzen and Fishbein's (1973) behavioral change model, intentions to change behavior are highly correlated with actual behavior change. Intentions to act is the second stage in the leadership change model. This study considered the development of an action plan an indication of intention to change behavior.

Action Plan. Locke and Latham (1990) demonstrated that receiving feedback alone does not cause behavior changes. It is the setting of goals and progressing toward the goals resulting from the feedback that cause improvements in performance.

Similarly, in a meta-analysis of feedback studies, Kluger and DeNisi (1996) found that

feedback with goal setting results in greater performance improvements than feedback alone. Kouzes and Posner (2001) recommended developing an action plan to map the behavior change desired. It was thought that the development of an action plan based on the feedback results indicated intention to change behavior and that greater intentions to change would lead to greater changes in behavior.

Hypothesis 2: Members developing an action plan will change their leadership behaviors more than those members not developing an action plan.

Behavior Change

Several indications of the third stage in the leadership change model, behavior change, were examined. These were the communication of the results with subordinates, the subordinates perceiving a greater effort by the leader to display leadership characteristics, and the leaders' self-reports of action taken based on the feedback results. A discussion of each of the indications of behavior change follows.

Communication. Kouzes and Posner (2001) suggest communicating the feedback results with subordinates to clarify the feedback and create a more specific action plan. Walker and Smither (1999) found that managers who communicated with subordinates about the feedback ratings improved more than managers who did not. They further reported that communication about the feedback could affect the following: clarity of the feedback to the ratee enabling more specific and accurate goals to be set, the depth to which the ratee thinks about the feedback, the likelihood that the ratee will set goals, and the commitment of the ratee to achieve the set goals. Additionally, discussing the feedback results with subordinates may create a more supportive environment in which

the supervisor can make behavioral changes. Hazucha et al., (1993) found that receiving input about an action plan from subordinates is one of the three activities most strongly related to skill development (the other two activities were reviewing plans and progress quarterly and receiving coaching and feedback). The current researcher proposed that greater tendencies to develop an action plan would result in greater tendencies to communicate feedback results with subordinates.

Hypothesis 2a: Greater reports of action plan development is related to greater communication with subordinates.

Effort. It was thought that if the leader changed his or her behavior after receiving the feedback, the subordinate would observe these changes. Using this variable, subordinates reported the degree to which their leaders made an effort to change their leadership behaviors after receiving the feedback. Subordinate reports of the leader's behavior change are regularly used to assess the efficacy of upward feedback programs (Smither, London, et al., 1995, Walker & Smither, 1999; Brett & Atwater, 2001). It was thought that the subordinates would provide a more objective assessment of the leaders' behaviors. The current researcher proposed that increased occurrence of action plan development would lead to increased reports of leader change efforts by subordinates.

Hypothesis 2b: Greater reports of action plan development is related to greater subordinate perceptions of the leader's effort to change behavior.

Action Taken. The leaders' self report of behavior change is the primary assessment of feedback efficacy in this study. This assessment is needed because managers may be taking steps to change, but the subordinate may not always be aware of

these actions by the leader. The more direct measure of action taken to change behavior has been measured in many other studies (Smither & Wohlers, 1995; Hazucha et al., 1993; Leaders reported the degree to which they took action to make changes in their leadership behavior after receiving the feedback. It was thought that an increased occurrence of action plan development would lead to increased reports of leaders taking action to change their leadership behavior.

Hypothesis 2c: Greater reports of action plan development is related to greater reports of leader's action taken to change behavior.

Feedback Specificity as a Moderator

This research assessed a previously untested feedback instrument, the UFI. The UFI was developed to provide managers more specific feedback about their leadership behaviors to assist them in greater leadership development. It is in this context that feedback specificity was manipulated to determine its effect on intentions to act. Following is a discussion of specificity of feedback.

Specificity. Earley (1988) found that specific feedback contributes to action plan development and leads to increased performance. Also, Pritchard, Montagno, and Moore (1978) found that more specific feedback resulted in equal or improved levels of performance and errors made compared with less specific feedback. The specific feedback was clearly superior when given the feedback was given in a personal manner (i.e., face to face with a supervisor) versus an impersonal manner (i.e., computer print out). Additionally, Yukl and Lepsinger (1995) stated that descriptions of specific behavior in feedback will result in the greatest improvement. It was thought that the

more specific feedback would cause greater intentions to act, that is, would lead to the creation of more detailed action plans. A review of 35 years of goal setting theory revealed that setting specific, difficult goals leads to increased performance (Locke & Latham, 2002). It is therefore thought that the increase in feedback specificity will lead to greater behavioral change through greater intentions to act. In particular, it was expected that the leaders' intentions to act and, consequently, the leader's action taken to be significantly different between the UFI and LPI groups. Figure 2 depicts the model for leadership behavior change including specificity.

Hypothesis 3: Increased feedback specificity will lead to higher intentions to change leadership behaviors.

Organizational Characteristics as Predictors

In addition to the leaders' perceptions of accuracy and usefulness and specificity of feedback, it has been demonstrated that characteristics of the organization would be related to the leaders' intentions to change (Kerr & Jermier, 1978; Schriesheim, House, & Kerr, 1976). Therefore, characteristics of the organization, specifically, perceived organizational support and discretion, were added to the behavior change model. Figure 3 depicts the model for leadership behavior change with all the study constructs included.

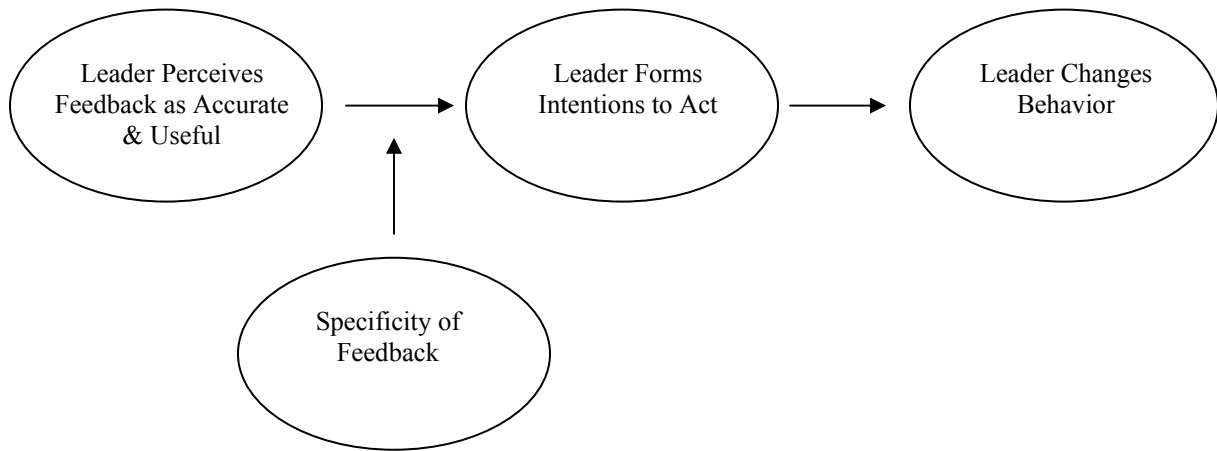


Figure 2. Model of leadership change process with specificity.

Perceived Organizational Support (POS). POS refers to the extent the member feels valued and cared for by his or her organization. Eisenberger, Huntington, Hutchison, and Sowa (1986) demonstrated that members reporting high POS tend to be more committed to the organization and may be more likely to improve their performance to help the organization. POS is also important in relation to an upward feedback program because it has been found that an environment that supports development is key to maintaining changed behavior (Baldwin & Ford, 1988). The researcher expected greater reports of POS to increase intentions to change behavior.

Hypothesis 4a: Members reporting higher levels of POS will report greater intentions to change their leadership behavior.

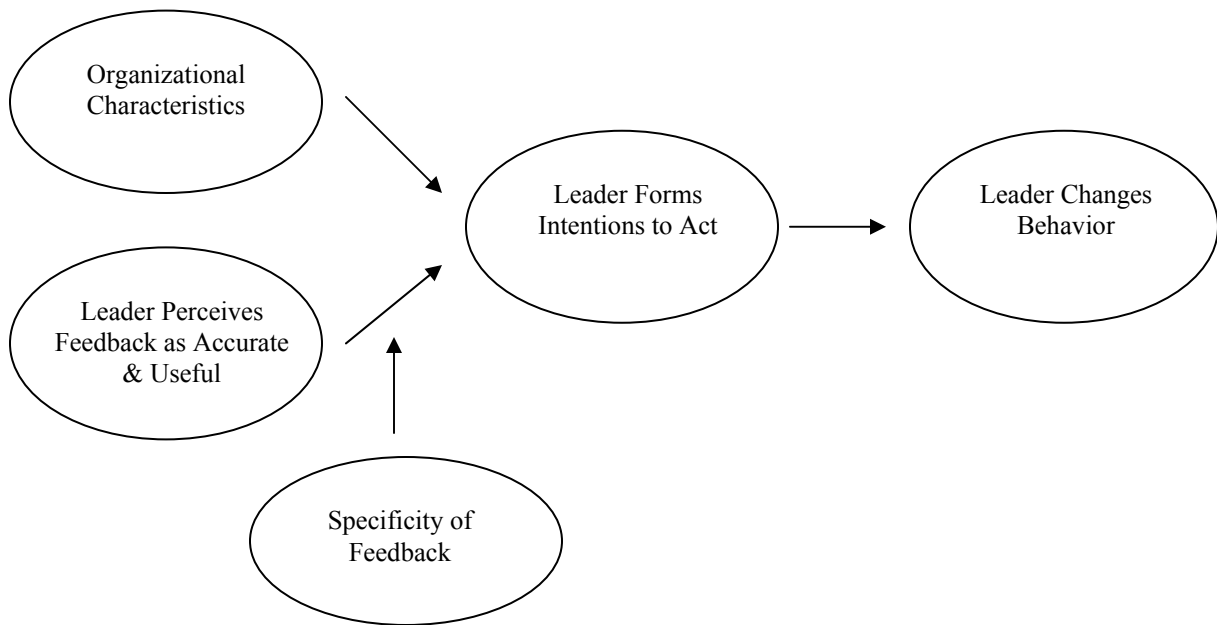


Figure 3. Complete model of leadership change process.

Discretion. Discretion refers to the degree to which supervisors feel they have the ability or latitude to make decisions or changes concerning their job. This is similar to Fiedler's (1973) concept of situational control defined as the degree to which supervisors feel clear, confident, and in control of their jobs. Several researchers (Kerr & Jermier, 1978; Schriesheim et al., 1976) have suggested that measures of leadership behavior should only include items which the leader has discretion over. Leaders who perceive they have more discretion will be able to make more changes in their leadership behavior. It was expected that greater reports of perceived discretion to increase intentions to change behavior.

Hypothesis 4b: Members reporting higher levels of discretion will report greater intentions to change their leadership behavior.

Chapter Summary

Upward feedback programs are becoming increasingly more popular in today's organizations. As such, certain Air Force organizations are attempting to develop flexible, inexpensive feedback instruments that provide their leaders with useful, specific feedback that can lead to improved leadership development. Based on the research done by Kouzes and Posner (1995), Patton (2002) developed the UFI. The research assesses the utility of the overall feedback program and, in particular, evaluates the effectiveness of the UFI.

III. Methodology

Introduction

A utility assessment was administered as a follow-up to Patton's (2002) study of an upward feedback program. The program was implemented as a leadership development effort and as a pilot test of a recently developed upward feedback tool, the UFI. Two instruments, the LPI and the UFI, were employed in the program with the hopes of comparing the effectiveness of the UFI in generating leadership behavior change against an established upward feedback instrument. The study represents a cross sectional correlational design of supervisor and subordinate perceptions with a true experimental posttest-only control group design (Dooley, 2001). The specificity of feedback provided by the UFI was the experimental treatment and the participants were randomly assigned to either the UFI ($N = 56$) or LPI groups ($N = 55$). Utility assessments from both the self and subordinate perspectives served as the posttest.

Chapter II presented a model with five constructs, three measured by supervisors' perceptions, one by both supervisors' and subordinates' perceptions, and one was manipulated using two forms of feedback, the UFI and the LPI. This chapter provides a discussion of the participants, administration, scale development, and statistical analysis used in the study.

Participants

Participants were government-employed supervisors and subordinates at a military base in the Midwest. Detailed demographic data were not collected, however the majority of respondents were civilian while some respondents were military.

A total of 111 supervisors were asked to participate and 54 responded for a response rate of 48.6%. Sixty-nine of the 698 subordinates who had participated in the upward feedback program responded to the utility assessment for a response rate of 9.9%.

Administration

The upward feedback program was implemented as part of an initiative to develop supervisory leadership in mainly two government organizations. The upward feedback program was the first effort undertaken by the organizations' human resources directorate as part of the organizations' overall supervisory development initiative. Also, the organizations had recently devoted management attention on the need to further develop leadership in the organization's supervisors.

Data on supervisors' leadership behaviors were collected from both the leaders and their subordinates using both the LPI (Posner & Kouzes, 1988) and the UFI (Patton, 2001). Participants were randomly assigned to complete either the UFI or the LPI. The feedback was presented to leaders with guidance on interpretation and changing behaviors. For further details on the administration of the upward feedback program, see Patton (2002).

All supervisors who received upward feedback were asked to participate in the utility assessment. Supervisors were directed to ask their subordinates to participate in the subordinate assessment. Participants were given six weeks to complete the survey. A follow up email was sent if either the supervisor had responded and subordinates had not or if the subordinates had responded and the supervisor had not. The participants were told that the purpose of the utility assessment was to assess how effective the upward feedback program was and indicate trends at the organizational level. They were also

informed that a final report would be provided to the participating organizations and no analysis of individual reports would be conducted and only members of the research team would have access to the raw data. Finally, they were informed that their participation was voluntary and their confidentiality was assured. The utility assessment was deployed about 10 months after the feedback was received by the supervisors.

Utility assessments were distributed to the supervisors via email from the research team. The solicitation email contained a link to the assessment website. Simsek & Vega (2000) proposed that electronic survey techniques, i.e., email solicitation, can gather valid data for use in several types of organizational studies as long as the sample is representative of the population. The participants had the option of completing the survey on-line or printing a paper version and submitting it through the mail. On-line data collection provided easier administration and a cheaper alternative to paper-based data collection. Dooley (2001), however, warns that on-line data collection may create problems of sampling (not everyone has access to the internet), validity (respondents not providing genuine answers), and ethics (obtaining informed consent).

Several steps were taken by the researcher to combat these concerns of on-line implementation. First, everyone in the test organizations had access to the internet. Second, the instructions outlined the purpose of the assessment and reiterated that the answers would remain anonymous. Finally, the privacy notice and voluntary nature of the survey ensured informed consent. Further support of web-based information was put forth by Penny (2003). In this comparison of paper and web-based administrations of a 360-degree feedback program, no differences were found between the different methods. Because web-based methods of data collection reduce administrative burden and are

cheaper, this study supports the use of web-based data collection. Ninety-three percent of surveys were completed on-line.

Utility Assessment Development

The utility assessment was designed to help the researcher understand managers' and subordinates' reaction to the upward feedback program in general and, more specifically, to help the researcher understand the managers' and subordinates' reaction to the feedback provided by each of the instruments. Two forms of the utility assessment were developed—Leader Assessment, in which the leader reports his or her perceptions of the feedback program, and Subordinate Assessment, in which the leader's subordinates report their perceptions of the feedback program and their leader's subsequent behavior.

Items for the utility assessment were drafted based on the key areas found in the relevant literature (Brett & Atwater, 2001; Smither, London, et al., 1995; Smither, Wohlers, et al., 1995). Following completion of the initial draft, two subject matter experts evaluated the content validity of the items. Based on the expert inputs, a final version of the assessment was developed.

Leader Assessment

The Leader Assessment consisted of 43 items. The items covered the following categories: perceptions of accuracy and usefulness (i.e., perceptions; 19 items), development of an action plan (i.e., action plan; six items), action taken following feedback (i.e., action taken; six items), perceived organizational support (i.e., POS; six items), and perceived discretion within the organization (i.e., discretion; six items). All items were evaluated on a six-point Likert-type scale where 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *strongly agree*.

The complete survey is included in Appendix A. The survey asked respondents to review their feedback report and reflect on the overall process. Then, the respondents were asked to indicate the extent they agreed with each statement.

Following is a description of each scale.

Perceptions. Leaders rated their perceptions of the accuracy and usefulness of the feedback they received. This scale included 19 items (e.g., “The feedback was accurate” and “Participating in this specific feedback process will help me become a better leader”). Items were adapted from several studies (Brett & Atwater, 2001; Smither, London, et al., 1995; Smither, Wohlers, et al., 1995). This scale had a reliability coefficient of .89.

Action Plan. Leaders reported the degree to which they developed an action plan to change their leadership behaviors after receiving the feedback. It was thought that the leaders’ creation of an action plan (i.e., intending to act), would mediate the effect between leaders’ perceptions and leaders’ actions to change behavior. The action plan scale initially consisted of six items, however, one item was deleted to achieve an acceptable level of inter-item reliability. The six item scale had a reliability of .61. The five-item scale included statements such as “Based on the feedback I received, I developed a plan to change the way I enable others” and “Based on the feedback I received, I developed a plan to change the way I set an example for and motivate others”. The five items had a reliability coefficient of .72.

Action Taken. This scale was based on Kouzes and Posner’s (2001) steps to changing leadership behavior. Leaders reported the degree to which they acted on the feedback results. This variable was measured by six items (e.g., “I have taken action to change my leadership behavior in ways that challenge the process” and “I have taken

action to change my leadership behavior in ways that enable others to act”). The six items had a reliability coefficient of .80.

Specificity. Specificity was manipulated by randomly assigning leaders to groups that completed the UFI or the LPI. Because the UFI reported at the commitment level versus the practice level reported with the LPI, more specific feedback was given to leaders who were in the UFI group. Therefore, specificity was a categorical variable where participants were coded 1 if they completed the UFI and 0 if they completed the LPI. Because this variable is categorical, no reliability estimate can be reported.

POS. An abbreviated version of Eisenberger et al.’s (1986) POS scale was used to measure POS. The abbreviated scale was comprised of six items (e.g., “My organization is willing to extend itself in order to help me perform my job to the best of my ability” and “My organization cares about my general satisfaction at work”). The researcher felt the items selected would capture the leaders’ POS to the extent required in the utility assessment. Previous reliability estimates for this abbreviated version are not available, but Eisenberger et al., reported Cronbach’s alpha of .97 for the full version of the scale, indicating a reliable scale. The six items used in this study had a reliability coefficient (Cronbach’s alpha) of .79.

Discretion. Leaders rated their perceptions of their discretion to take action in their organization. This scale included six items (e.g., “I have discretion to challenge the process” and “I have discretion to encourage humor and promote fun activities in the workplace”). The six items had a reliability coefficient of .76.

Subordinate Assessment

The Subordinate Assessment consisted of 13 items. First, subordinates were asked if they completed an upward feedback assessment on their current supervisor. Fifty-one utility assessment inputs were disregarded because of this. To evaluate a more objective assessment of the leaders' actions, the subordinates' perceptions were analyzed. The items covered the following categories: leader's communication with subordinates about the feedback results (i.e. communication; six items) and perception of leader's effort to improve leadership after the feedback (i.e., effort; six items).

All items were evaluated on a six-point Likert-type scale where 1 = *strongly disagree*, 2 = *disagree*, 3 = *somewhat disagree*, 4 = *somewhat agree*, 5 = *agree*, and 6 = *strongly agree*. The complete survey is included in Appendix B. The survey asked subordinates to assess the extent they believed their supervisor received, interpreted, communicated, and acted on the feedback provided by the unit.

Following is a description of each scale.

Communication. Subordinates reported the degree to which their leaders communicated the feedback results with them after receiving the feedback in each of the leadership practices. This scale included six items (e.g., "My supervisor communicated the encouraging the heart feedback results with me" and "My supervisor communicated the challenge the process feedback results with me"). The six items had a reliability coefficient of .79.

Effort. Subordinates reported the degree to which their leaders made an effort to change their leadership behaviors after receiving the feedback. This scale included six items (e.g., "I noticed my supervisor has made an effort to have fun after the feedback")

and “I noticed my supervisor is trying harder to challenge the process after the feedback”). The six items had a reliability coefficient of .77.

Scale Development Summary

The assessments were developed from similar previously established instruments. The internal consistency reliability estimates for the seven variables ranged from .72 to .89, exceeding the standard of .70 commonly used (Huck & Cormier, 1996). This evidence contributed to the instrument’s reliability and validity.

Statistical Analyses

This study primarily used regression techniques in the analysis. However, the descriptive statistics of the data will first be presented to evaluate the data’s efficacy in the analysis. Means, standard deviations, skewness, and kurtosis of the study variables are presented in Table 4. Because multiple responses were received on some supervisors, an average item score for each supervisor was used. The specificity variable was not included in the descriptive statistics table because it is a categorical variable and therefore, would not provide much useful data.

Skewness and Kurtosis

Skewness and kurtosis were evaluated to determine normality of the data; normality of the data is required to draw any kind of meaning from the descriptive statistics. Skewness of the data ranged from -0.96 to 0.41 for the study variables. A negative skewness indicated that the data were slightly slanted to the right (toward the agreement end of the scale). A positive skewness indicated that the data were slightly slanted to the left. However, the level of skewness was within the range accepted for the normality assumption (Larsen & Marx, 2001). The kurtosis ranged from -0.75 to 1.43

Table 4

Descriptive Statistics of the Study Variables

	Variable	<i>N</i>	<i>M</i>	<i>SD</i>	<i>S</i>	<i>K</i>
1	Perceptions	54	4.45	0.55	-0.85	0.81
2	POS	51	4.64	0.73	-0.27	-0.02
3	Discretion	53	3.83	0.69	-0.41	-0.06
4	Action Plan	53	3.67	0.66	-0.52	-0.71
5	Action Taken	53	3.95	0.69	-0.96	1.43
6	Communication	34	3.67	1.04	-0.09	-0.75
7	Effort	34	3.92	0.86	0.41	-0.38

Note. *S* = skewness; *K* = kurtosis.

* $p < .05$ (1-tailed). ** $p < .01$ (1-tailed)

and was also within the acceptable range for the normality assumption (Larsen & Marx, 2001). A negative kurtosis value indicates that the sample data are less peaked than a normal distribution. A positive value indicates the data are more peaked. From this analysis it can be concluded that the data are approximately normal.

Means and Standard Deviations

Because the response scale ranged from 1 = *strongly disagree* to 6 = *strongly agree*, a mean of 3.5 for the variables indicated that the sample, on average, neither agreed nor disagreed with the statement. The leaders' self-reported perceptions of accuracy and usefulness (i.e., perceptions $M = 4.45$, $SD = 0.55$) and POS ($M = 4.64$, $SD = 0.73$) results indicated that leaders on average found the feedback accurate and useful and

perceived high levels of organizational support. It was interesting that POS scored relatively high ($M = 4.64$, $SD = 0.73$), but leaders' perceptions of discretion were only average ($M = 3.83$, $SD = 0.69$). We would expect high POS to be positively related to discretion because if leaders perceived support from their organization to make mistakes, etc. they would also feel empowered to make changes in their organization. This relationship required further examination. Leaders reported that action plans were created about half of the time (i.e. action plan $M = 3.67$, $SD = 0.66$). Based on the subordinate reported results, on average, subordinates did not necessarily perceive their leaders taking actions to change their leadership behavior (i.e., communication $M = 3.67$, $SD = 1.04$; effort $M = 3.92$, $SD = 0.86$). Further, leaders did not report high levels of action taken (i.e., action taken $M = 3.95$, $SD = 0.69$) to improve their leadership. The low levels of action plans created, or intentions to change, by leaders may explain the low levels of action taken by leaders if our model holds true.

Regression Analysis

To assess the relationships between our study variables regression analysis was used. The researcher conducted one multiple linear regression and three hierarchical regressions to test the hypotheses. In the first regression, action plan was treated as the dependent variable with POS, discretion, perceptions, specificity, and the interaction between specificity and perceptions as the predictors. For the remaining regression analyses, POS, discretion, perceptions, specificity, and the interaction between specificity and perceptions were the predictors and entered in the first block. In the second block, action plan was entered in block 2 to show the mediating effects between the perceptions

and actions. The dependent variables for the three regressions were as follows: action taken, communication, and effort.

Chapter Summary

This chapter began with a description of the UFI development process and contents and continued with a description of the instrument administration and participants. The seven scales employed in the study proved to have inter-item reliability. An analysis of the descriptive statistics of the study variables was then presented. It was concluded that the data are acceptable for use in the proposed statistical analyses. Finally, the statistical technique used in the analysis of results was presented.

IV. Results

Introduction

This research began with the overall objective of better understanding upward feedback as a tool for leadership development. The relationships between characteristics of feedback, characteristics of the organization, intentions to change leadership behavior, and actions taken to improve leadership were analyzed. In particular, this research sought to compare a new upward feedback instrument, the UFI, to an established instrument, the LPI. The analysis and results presented in this chapter are an attempt to examine the relationships found in this study and establish the convergent validity of the UFI.

First, the correlations between the study variables were evaluated. A discussion of the regression analysis followed revealing associations between the variables. Statistically significant relationships were found to support some of the hypotheses posed in Chapter II. However, insignificant relationships in the regression models suggested that not all relationships were as expected.

Correlations

Correlations, in general, indicate how two variables covary in a particular setting (Kachigan, 1991). Another description of correlation is the amount of variation in one variable that can be attributed to the variation in another variable. Correlation analysis can reveal patterns of association between two variables in isolation. However, correlations cannot describe the relationships of the variables in the context of the full model. Consequently, conclusions were not drawn from the correlation analysis, but

rather the subsequent regression analysis. Additionally, causal interpretations cannot be implied from correlational results. Table 5 presents the correlations among study variables.

The largest positive relationship was observed between perceptions and action taken ($r = .80, p < .01$). This was consistent with the findings of Atwater et al., (2000) that the supervisor's perception of accuracy of the feedback was related to supervisor improvement. Additionally, perceptions was significantly related to action plan ($r = .41, p < .01$). This relationship was expected (i.e., Hypothesis 1). The relationship between action plan and action taken was also significant ($r = .46, p < .01$) as was expected in Hypothesis 2c. Further, the proposed relationships between organizational characteristics, POS and discretion, and intentions to change were significant ($r = .39, p < .01$; $r = .70, p < .01$, respectively).

The largest negative relationship was observed between action plan and communication ($r = -.39, p < .05$) reflecting that leaders who made an action plan reported a low tendency to communicate the feedback results with subordinates (and vice versa). This was contrary to what was expected in Hypothesis 2a (i.e., greater reports of action plan development is related to greater communication with subordinates). Additionally, no significant relationship between action plan and effort was found (hypotheses 2b; $r = -.02, ns$).

While correlation analysis describes the extent of associations between two variables in isolation, regression analysis provides a means of analyzing the nature of relationships among multiple variables (Kachigan, 1991). That is, correlations do not account for associations among interrelated variables, whereas regression does.

Table 5

Correlations Among Study Variables

Variable	<i>N</i>	1	2	3	4	5	6	7
1 Perceptions	54	(.89)						
2 POS	51	.70**	(.79)					
3 Discretion	53	.44**	.31*	(.76)				
4 Action Plan	53	.41**	.39**	.70**	(.72)			
5 Action Taken	53	.80**	.69**	.35**	.46**	(.80)		
6 Communication	34	-.16	-.02	-.32	-.39*	-.14	(.79)	
7 Effort	34	.02	.06	-.01	-.02	.04	.76**	(.77)

Note. Coefficient alphas appear along the diagonal.

$p < .05$ (1-tailed). ** $p < .01$ (1-tailed)

Additionally, regression allows analysis among variables that have been experimentally manipulated. A discussion of the regression analysis performed in this study follows.

Regression Analysis

Regression analysis provides four useful pieces of information. First, regression reveals the existence of a relationship between variables within the context of the full model. Second, regression describes the nature of the relationship, that is, provides predictive ability, with the resulting regression equation. Third, the R^2 value provided by the regression analysis represents the proportion of variance explained by all the predictor variables combined and indicates the predictive accuracy of the regression equation. Finally, regression assesses the relative importance of the individual predictor variables represented by the beta coefficients resulting from the regression (Kachigan, 1991).

Four regressions were conducted. In the first regression action plan was treated as the criterion variable and POS, discretion, perceptions, specificity, and the interaction between specificity and perceptions were treated as the predictors. The remaining three regressions were hierarchical. In these regressions, POS, discretion, perceptions, specificity, and the interaction between specificity and perceptions were the predictors and entered in block 1. Action plan was treated as a mediating variable and entered in block 2. This was done to show the mediating effects of action plan between the perceptions and behavior change. The criterion variables for the last three regressions were communication, effort, and action taken, respectively.

Prior to conducting the analysis, assumptions required for regression analysis were evaluated. The predicted vs. dependent variable scatter plot among all regressions revealed no distinct pattern or outliers. However, the F tests for some models revealed insignificant p -values indicating insignificant linear relations. The plot of residuals revealed no apparent pattern indicating constant variance. In addition to the skewness and kurtosis analyses presented in Chapter III, the normal probability plot revealed a good fit so normality may be assumed. The sample was drawn from a large pool of people and manipulations were randomly assigned. We can therefore assume independence of the sample observations. In summary, the assumptions of constant variance, normality, and independence were met. There were some indications of non-linearity which may weaken our statistical validity in the analysis.

The variance inflation factors (VIF) of the independent and mediating variables ranged from 1.07 to 5.75 indicating acceptable levels of collinearity among the variables (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Although the VIF of the interaction

variables consistently exceeded 90, Jaccard, Turrisi, and Wan (1990) say this is to be expected and does not substantively threaten the interactive model.

Model 1

Model 1 was a linear regression with action plan as the criterion variable. Perceptions, POS, discretion, specificity, and the interaction between specificity and perceptions were direct predictors in this model. Results of all regressions are presented in Table 6. The predictors in this model explained 61% of the variance in action plan. As predicted in Hypothesis 4b, greater reports of discretion were related to greater reports of action plan ($\beta = .73, p < .01$). Model 1 provided no support for a relationship between perceptions and action plan (i.e., Hypothesis 1) or POS and action plan (i.e., Hypothesis 4a). Further, neither specificity nor the interaction of specificity and perceptions, resulted in further explanation of variance of action plan (i.e., Hypothesis 3).

Model 2

Communication was the criterion variable in this hierarchical regression model. The indirect predictors in Model 2 were perceptions, POS, discretion, specificity, and the interaction of specificity and perceptions; these were entered in block 1. Block 2 consisted of action plan, the direct predictor, and was expected to mediate the relationship between perceptions of accuracy and usefulness, organizational characteristics, and behavior change. The model explained 25% of the variance with 19% explained by the indirect predictors. No variables significantly contributed to the model. Thus, the hypothesis that greater reports of action plan development was related

Table 6

Results of the Linear and Hierarchical Analysis

Model		1		2		3		4	
		Criteria							
Variable		Action Plan		Communication		Effort		Action Taken	
Block 1	Perceptions	0.12	--	-0.49	-0.48	-0.28	-0.28	0.64**	0.62**
	POS	0.16	--	0.08	0.07	0.04	0.03	0.24*	0.21*
	Discretion	0.73**	--	-0.30	-0.06	-0.01	0.01	0.03	-0.09
	Specificity	0.72	--	-2.57	-2.67	-1.76	-1.77	-0.01	-0.13
	Spec x perc	-0.78	--	2.40	2.51	1.45	1.46	-0.19	0.12
Block 2	Action Plan	--	--	--	-0.34	--	-0.02	--	0.17
	R^2	.61	--	.19	.25	.10	.10	.70	.71
	ΔR^2	--	--	--	.06	--	.00	--	.01

Note. Standardized beta coefficients are reported. Spec x perc=specificity x perceptions.

Dashes indicate values were not applicable.

* $p < .05$ ** $p < .01$

to greater communication with subordinates (Hypothesis 2a) was not supported. Further, this model showed that intention to change did not mediate behavior change.

Model 3

Model 3 consisted of a hierarchical regression to assess the mediating effect of intentions to change (i.e., action plan) between perceptions and behavior change,

specifically, effort. Effort served as the criterion variable. Again, perceptions, POS, discretion, specificity, and the interaction of specificity and perceptions were the indirect predictors in block 1 and action plan was the direct predictor in block 2. This model explained 10% of the effort variance. Action plan explained no further variance in the model and no predictors were significant contributors. The results of this model do not support Hypothesis 2b that greater action plan development was related to greater leader effort observed by the subordinates.

Model 4

Model 4 was also a hierarchical regression testing the mediation effects of action plan. Action taken was the criterion variable in this model. Perceptions, POS, discretion, specificity, and the interaction of specificity and perceptions were indirect predictors in block 1. Action plan was entered in block 2 and served as the direct predictor. A total of 71% of the action taken variance was explained by this model. However, 70% was explained by the indirect predictors and only 1% was explained by action plan. Perceptions and POS significantly contributed ($\beta = .62, p < .01$; $\beta = .21, p < .05$) to the full model. Because perceptions and POS were significant in both the first and second steps of the model, action plan did not fully mediate between perceptions and action taken. In other words, at least part of the effect of perceptions was not mediated by intentions. These results did not indicate support for Hypothesis 2c that action plan development is positively related to greater action taken by the leader.

Chapter Summary

Chapter IV presented the results from the examination of the relationships found among study variables. First, correlations among the variables were examined. This analysis gave some indication of the associations expected in the regression model. The second phase of analysis consisted of four regressions. Support was found for the relationship in Hypothesis 4b (i.e., discretion and action plan), however, no support was found for any of the other hypotheses. In particular, specificity did not have a significant effect on any of the regression models (i.e., Hypothesis 3).

These findings did not support the expectation that more specific feedback provided by the UFI would result in greater intentions to change and, consequently, greater behavior change. However, based on these results, the UFI did not perform any worse than the LPI. This provided support for the UFI in that it performed at least as well as the LPI

V. Discussion

Overview

This research was initiated with the intent of developing a further understanding of the upward feedback process and the effect of specificity of feedback on behavior change. This chapter discusses the results of the statistical analysis performed in Chapter IV that assessed the associations among variables using regression analysis. This analysis is discussed in reference to the four hypotheses posited in Chapter II and conclusions regarding this research are drawn. Additionally, this chapter discusses the limitations of the research as well as the theoretical and practical implications of the research results. The final section of this chapter suggests further research.

Hypothesis 1

Hypothesis 1 proposed that perceptions of useful and accurate feedback would lead to greater intentions to change. Specifically, it stated that perceptions would lead to greater reports of action plans developed. The multiple linear regression used in model 1 did not find support for this hypothesis. We concluded, therefore, based on this research that perceptions was not related to intentions to change leadership behavior.

Hypothesis 2

Hypothesis 2 posited that intentions to change would be significantly related to behavior change. In particular, it was proposed that members developing an action plan would be more likely to communicate with subordinates (Hypothesis 2a), to be perceived

by subordinates as making an effort to change (Hypothesis 2b), and to take action to change behavior (Hypothesis 2c). This research tested Hypothesis 2 by performing three hierarchical regression analyses. No support was found for these hypotheses as a result of the regressions. It does not appear that developing an action plan is related to communication with subordinates, observed effort by subordinates, or action taken by leaders.

Hypothesis 3

Hypothesis 3 proposed that increased feedback specificity would lead to higher intentions to change leadership behaviors, that is, create an action plan. However, neither specificity nor the interaction between specificity and perceptions contributed significantly to the models. It appears that specificity in this research did not cause increased intentions to change behavior.

Hypothesis 4

Hypothesis 4 predicted that organizational characteristics would be related to intentions to change. In particular, it was thought that members reporting higher levels of POS would report having developed an action plan (Hypothesis 4a) and members reporting higher levels of discretion would report having developed an action plan (Hypothesis 4b). Although Hypothesis 4b was not supported by the regression in model 1, Hypothesis 4a was supported. Discretion had significant effect on action plan development. Therefore, there is partial support that organizational characteristics are related to intentions to change.

Limitations

Several limitations were noted during this research. First, the limited sample size in this study reduced the statistical power and conclusiveness of the results. Additionally, the response rate of both supervisors and subordinates was low considering that the upward feedback program was developed at the unit's request and leadership voluntarily participated in the feedback gathering. Further, the solicitation method used to involve the subordinates in the research may not have been the most effective. Subordinates only had a 9.9% response rate. There may be several reasons for this. Considering the subordinate solicitation method, supervisors may not have asked subordinates for their participation. Another possibility is that the subordinates were asked by their supervisor, however, the subordinates may have chosen not to participate for any number of reasons. Third, it is unknown how accountable leaders were held for accepting and acting on the feedback. If leaders are not held accountable, they may be less likely to make behavior changes. Another major limitation would be the untested presence of other variables contributing to intentions to change or behavior change, such as individual characteristics. Finally, although the LPI has been somewhat rigorously examined, the UFI is relatively untested. Further scrutiny and updates are needed to make the UFI a viable feedback instrument.

Theoretical Implications

The main variable of interest, specificity of feedback, was found not to have any effect on this administration of upward feedback. Additionally, intentions to act (i.e., action plan) did not mediate between perceptions and behavior change as proposed by

Ajzen & Fishbein (1973). However, Ilgen et al.'s (1979) theory of behavior change process was supported in that perceptions led to action taken by the leaders. Finally, organizational characteristics were found to influence both intentions to act and actual behavioral change. Perceived organizational support appeared to have significant effect on a leader's action taken to change behavior consistent with Eisenberger et al., (1986). Discretion was found to have a significant effect on intentions to change.

Practical Implications

The development of the Upward Feedback Instrument provides organizations and individual supervisors with an alternative instrument to Kouzes and Posner's (1988) Leadership Practices Inventory. This study demonstrated the comparable effect of UFI feedback versus LPI feedback. Most significantly, it provides a low-cost instrument that is widely available and easily administered.

These results also indicate that organizational characteristics have an important effect on leadership improvement efforts. Therefore, organizational leaders should have further incentive to pay attention to the environment in their units and take corrective actions if necessary.

Additionally, leaders should fully embrace feedback programs if they really want them to be effective. This includes making leadership development a priority in the unit and holding supervisors accountable for developing their leadership skills. One way to do this would be to have the feedback recipients submit their action plan to their supervisors to ensure continual progress. Organizational leaders should also convey to their subordinates that their full and honest participation is expected. Leadership

development will be only as powerful the unit's senior leaders want it to be. Therefore, much effort needs to be made to communicate the importance and priority of the development program. Evidence of low participation and commitment can be found in the response rates of both supervisors and subordinates and in the mean scores of the variables. Although most of the leaders found the feedback useful and accurate ($M = 4.45$, $SD = 0.55$), barely half reported making an action plan ($M = 3.67$, $SD = 0.66$) or taking action to change leadership behavior ($M = 3.95$, $SD = 0.69$). However, the leaders' perceived discretion was low ($M = 3.83$, $SD = 0.69$) indicating that the leaders may not have felt able to make changes necessary to improve their leadership. Although the cause for low participation, low intentions to change, and low action taken cannot be determined in this research, it is clear that feedback recipients are not as involved in the development process as was hoped.

Suggestions for Further Research

If possible this research should be expanded to a larger sample and administered with an updated version of the UFI. Additionally, 360-degree feedback should be employed versus just upward feedback. The effects of individual characteristics on a person's intention to change should be examined. Finally, automating the entire feedback process within a 360-degree feedback program should be attempted to provide easy access and administration of such a program to a large pool of participants.

Appendix A

LEADER ASSESSMENT

Privacy Notice

The following information is provided as required by the Privacy Act of 1974:

Purpose: To obtain information regarding employees' perceptions of their supervisors leadership behaviors.

Routine Use: The survey results will be used to provide developmental feedback for individual supervisors, and to indicate trends at the organizational level. A final report will be provided to participating organizations. No analysis of individual responses will be conducted and only members of the Air Force Institute of Technology research team will be permitted access to the raw data.

Participation: Participation is **VOLUNTARY**. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

Instructions

This questionnaire is part of a pilot leadership development program managed by the Air Force Institute of Technology (AFIT) for supervisors at the Aeronautical Systems and Air Force Security Assistance Centers. The utility survey will provide the AFIT team insight on the effectiveness of the feedback program. In this survey, we ask that you assess the extent you believe you received, interpreted, communicated, and acted on the feedback that your unit provided.

We have developed an electronic survey to reduce material and labor costs associated with collecting and entering data. Several steps have been taken to protect your anonymity. First, your response will be sent directly to the AFIT survey control point. No one in your organization will see your completed survey. Second, your organization will not receive an individual report based on the survey data collected. Responses will be summarized and reported at the two-letter level only.

For a number of reasons, some people are more comfortable providing their responses using a more traditional pencil and paper survey. If you would like to complete a paper version of the survey, print the attached file and record answers directly on the sheet then mail it to us.

Please mail to:
Survey Control Point
AFIT/LSB
ATTN Maj Thurston
2950 P Street Rm
213
WPAFB, OH

Please contact us at utilityassessment@afit.edu if you have any questions about this survey. We thank you for your participation.

Please take a moment to review your feedback report and reflect on the overall feedback process. Read each statement carefully and indicate the extent you agree in regards to the feedback process, the change in your behavior since the feedback was received, or your organization in general.

A. FEEDBACK USEFULNESS, ACCURACY, HELPFULNESS

When answering the following questions, think about the feedback process in general. Use the following scale and record your answers in the space provided.

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

- ____ 1. The survey questions were easy to understand.
- ____ 2. The behaviors reflected in the survey are meaningful to my job.
- ____ 3. I received detailed feedback.
- ____ 4. The feedback was beneficial.
- ____ 5. The feedback was accurate.
- ____ 6. The feedback report was easy to understand.
- ____ 7. I agree with the subordinates' ratings of my behavior.
- ____ 8. The ratings were consistent with the way I think of myself.
- ____ 9. I think the feedback was collected in a fair manner.
- ____ 10. Participating in this specific feedback process will help me become a better leader.
- ____ 11. Given the opportunity, I would participate in this process again.
- ____ 12. The Kouzes and Posner workbook helped me interpret the feedback.
- ____ 13. The Kouzes and Posner workbook was helpful in formulating an action plan.

B. ORGANIZATIONAL SUPPORT

Leaders are more likely to change their behavior when they believe they will receive support from their organization. Use the following scale to record your answers.

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

____ 14. My organization is willing to extend itself in order to help me perform my job to the best of my ability.

____ 15. My organization would forgive an honest mistake on my part.

____ 16. My organization cares about my general satisfaction at work.

____ 17. My organization cares about my opinions.

____ 18. My organization takes pride in my accomplishments at work.

____ 19. My organization wishes to give me the best possible job for which I am qualified.

C. PRACTICE SPECIFIC QUESTIONS

The following questions will help us assess whether you found the feedback, informative, useful, and actionable. When answering the following questions, think about the specific feedback you received. Use the following scale to record your answers

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

Challenge the Process

- ____ 20. I found the feedback for challenging the process informative.
- ____ 21. I have discretion to challenge processes.
- ____ 22. Based on the feedback I received, I developed a plan to change the way I challenge processes.
- ____ 23. I have taken action to change my leadership behavior in ways that challenge processes.

Inspiring a Shared Vision

- ____ 24. I found the feedback for inspiring a shared vision informative.
- ____ 25. I have discretion to inspire a shared vision.
- ____ 26. Based on the feedback I received, I developed a plan to change the way I inspire others.
- ____ 27. I have taken action to change my leadership behavior in ways that inspire shared visions.

C. PRACTICE SPECIFIC QUESTIONS (continued)

Use the following scale to record your answers

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

Enabling Others to Act

- ___ 28. I found the feedback for enabling others to act informative.
- ___ 29. I have discretion to enable others to act.
- ___ 30. Based on the feedback I received, I developed a plan to change the way I enable others.
- ___ 31. I have taken action to change my leadership behavior in ways that enable others to act.

Modeling the Way

- ___ 32. I found the feedback for modeling the way informative.
- ___ 33. I have discretion to set priorities, define tasks, and provide feedback to my employees.
- ___ 34. Based on the feedback I received, I developed a plan to change the way I set an example for and motivate others.
- ___ 35. I have taken action to change my leadership behavior in ways that model the way.

Encouraging the Heart

- ___ 36. I found the feedback for encouraging the heart informative.
- ___ 37. I have discretion to recognize others and celebrate accomplishments.
- ___ 38. Based on the feedback I received, I developed a plan to change the way I encourage others.
- ___ 39. I have taken action to change my leadership behavior in ways to encourage the heart.

C. PRACTICE SPECIFIC QUESTIONS (continued)

Some of you also received feedback on a sixth leadership practice “Have Fun”. Answer the following questions if applicable.

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

Having Fun

____ 40. I found the feedback for having fun informative.

____ 41. I have discretion to encourage humor and promote fun activities in the workplace.

____ 42. Based on the feedback I received, I developed a plan to change the way I encourage humor and promote fun activities.

____ 43. I have taken action to change my leadership behavior in ways to have more fun.

Thank you for your participation.
Please feel free to send us additional comments or feedback.

Appendix B

SUBORDINATE ASSESSMENT

Privacy Notice

The following information is provided as required by the Privacy Act of 1974:

Purpose: To obtain information regarding employees' perceptions of their supervisors leadership behaviors.

Routine Use: The survey results will be used to provide developmental feedback for individual supervisors, and to indicate trends at the organizational level. A final report will be provided to participating organizations. No analysis of individual responses will be conducted and only members of the Air Force Institute of Technology research team will be permitted access to the raw data.

Participation: Participation is **VOLUNTARY**. No adverse action will be taken against any member who does not participate in this survey or who does not complete any part of the survey.

Instructions

This questionnaire is part of a pilot leadership development program managed by the Air Force Institute of Technology (AFIT) for supervisors at the Aeronautical Systems and Air Force Security Assistance Centers. The utility survey will provide the AFIT team insight on the effectiveness of the feedback program. In this survey, we ask that you assess the extent you believe your supervisor received, interpreted, communicated, and acted on the feedback that your unit provided.

We have developed an electronic survey to reduce material and labor costs associated with collecting and entering data. Several steps have been taken to protect your anonymity. First, your response will be sent directly to the AFIT survey control point. No one in your organization will see your completed survey. Second, your organization will not receive an individual report based on the survey data collected. Responses will be summarized and reported at the two-letter level only.

Although we do not want to know your identity, we do need to be able to match your responses to your supervisor. Please enter your supervisor's name at the top of the page at the beginning of the survey. Again, both you and your supervisor's identity will be kept in confidence.

When completed please mail to the following address:

Survey Control Point
AFIT/LSB
ATTN Maj Thurston
2950 P Street Rm 213
WPAFB, OH 45433

Please contact us at utilityassessment@afit.edu if you have any questions about this survey. We thank you for your participation.

1. I completed a feedback survey for my current supervisor.

☐ Yes ☐ No

When responding to the following statements, think about the survey you completed on your supervisor. Please respond using the scale below.

1	2	3	4	5	6
strongly disagree	disagree	somewhat disagree	somewhat agree	agree	strongly agree

_____ 2. My supervisor communicated the “challenge the process” feedback results with me.

_____ 3. I noticed my supervisor is trying harder to challenge the process after the feedback.

_____ 4. My supervisor communicated the “inspiring a shared vision” feedback results with me.

_____ 5. I noticed my supervisor is attempting to inspire a share vision after the feedback.

_____ 6. My supervisor communicated the “enabling others to act” feedback results with me.

_____ 7. I noticed my supervisor has made efforts to enable others to act after the feedback.

_____ 8. My supervisor communicated the “modeling the way” feedback results with me.

_____ 9. I noticed my supervisor has tried to model the way after the feedback.

_____ 10. My supervisor communicated the “encouraging the heart” feedback results with me.

_____ 11. I noticed my supervisor is attempting to encourage the heart after the feedback.

_____ 12. My supervisor communicated the “have fun” feedback results with me.

_____ 13. I noticed my supervisor has made an effort to have fun after the feedback.

Thank you for your participation.
Please feel free to send us additional comments or feedback.

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14. ABSTRACT <p>Recently, organizations have been modifying performance appraisal systems to collect data from multiple sources to guide the development of supervisors. Upward feedback programs focus on development rather than appraisal by supplementing traditional downward feedback with subordinate feedback. The utility of two upward feedback instruments was assessed in this study; one is a commercially available instrument, the Leadership Practices Inventory (Posner & Kouzes, 1988) and the other is the recently developed, non-proprietary Upward Feedback Instrument (Patton, 2002). The Upward Feedback Instrument was designed to measure leadership behaviors at a more specific level. It was thought that greater feedback specificity would lead to greater intentions to change behavior and consequently, greater actual behavior change. This research developed and administered a utility assessment to supervisors and their subordinates in order to determine the performance of the respective instruments. Although the feedback specificity did not provide greater intentions to change, discretion, perceived organizational support, and perceptions of accuracy and usefulness were found to significantly affect intentions to change and actual behavior change.</p>					
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